IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT:	Brian K. Fuller et al.	EXAMINER:	Bareford, Katherine A.
SERIAL NO.:	10/677,869	GROUP ART UNIT:	1762
FILED:	October 2, 2003	ATTY DOCK. NO.:	DP-307055
FOR:	CORRECTING DEFECTIVE KINETICALLY SPRAYED SURFACES		

DECLARATION UNDER 37 CFR §1.132 ESTABLISHING THAT THE RELEVANT DISCLOSURE RELIED ON IS APPLICANTS' OWN WORK

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This declaration under 37 CFR §1.132 is being submitted in accordance with *MPEP 2136.05* to establish that the portions of U.S. Patent No. 6,743,468 ("the '468 patent") relied upon by the BPAI and the Examiner in rejecting claims 1, 2, 4, 6, 7, 10, 11, 14, and 15 of the subject application under 35 U.S.C. §102(e) are Applicants' own work and was conceived of before the effective filing date of the '468 patent such that the rejections under 35 U.S.C. §102(e) based on the '468 patent should be withdrawn.

Respectfully submitted,

HOWARD & HOWARD ATTORNEYS, P.C.

September 22, 2006
Date

/Trent K. English/
Trent K. English, Registration No.: 56,951
The Pinehurst Office Center, Suite #101
39400 Woodward Avenue
Bloomfield Hills, MI 48304-5151
(248) 723-0462

I, Alaa A. Elmoursi, hereby declare that:

1. I am a citizen of the United States.

2. I am currently employed as a(n) Senior Staff Research Engineer for Delphi Corporation. I have been employed by Delphi Corporation since July 5th, 1985 and have worked in the field of kinetic spraying for approximately 7 years.

3. I am a joint inventor with Brian K. Fuller and Kenneth M. Rahmoeller (collectively "Applicants") of U.S. Patent Application Serial No. 10/677,869, filed October 2, 2003, Attorney Docket No. DP-307055 ("the subject application").

4. I have read and understand the '468 patent, particularly the portions of the specification from column 6, line 60 through column 7, line 5 and column 7, lines 25-65, which are relied upon by Examiner Katherine A. Bareford ("the Examiner") in rejecting claims 1, 2, 4, 6, 7, 10, 11, 14, and 15 of the subject application under 35 U.S.C. §102(e), as set forth in the Final Office Action dated June 8, 2005.

5. I, along with Brian K. Fuller and Kenneth M. Rahmoeller, conceived of the portions of the specification of the '468 patent relied upon by the Examiner in rejecting claims 1, 2, 4, 6, 7, 10, 11, 14, and 15 under 35 U.S.C. §102(e) prior to September 23, 2002, which is the effective filing date of the '468 patent. These portions are Applicants' own work.

6. To establish that the portions of the specification of the '468 patent relied upon by the Examiner in rejecting claims 1, 2, 4, 6, 7, 10, 11, 14, and 15 under 35 U.S.C. §102(e) are Applicants' own work and that Applicants conceived of these portions of the specification of the '468 patent prior to September 23, 2002, the following Exhibits are

attached as supporting evidence:

Exhibit A – Redacted Record of Invention from Delphi Corporation, Attorney Docket No. DP-307055, entitled, "Healing Kinetically Sprayed Defective Surfaces";

Exhibit B – Redacted Record of Invention from Delphi Corporation, Attorney Docket No. DP-306711, entitled, "System with a Combined Kinetic Spray Thermal Spray Ability";

Exhibit C – Redacted Letter from Scott A. McBain, in-house patent counsel for Delphi Corporation, dated March 20, 2002, forwarding a copy of the Record of Invention for Attorney Docket No. DP-306711, entitled, "System with a Combined Kinetic Spray Thermal Spray Ability," to Howard & Howard Attorneys P.C.

7. Referring to Exhibit A, the Record of Invention associated with Attorney Docket No. DP-307055, entitled, "Healing Kinetically Sprayed Defective Surfaces," identifies Applicants as the inventors of the subject matter set forth therein and was signed by Applicants on September 25, 2001. This Record of Invention includes the following description of the subject matter conceived of by Applicants:

> Our invention is a method to recover from these isolated or extended conical defects that can occur when fabricating KS coatings. Our proposal is two-fold. Firstly, to circumvent the initiation of conical defects, we propose that the target or substrate's surface be pre-sprayed using the thermal spray (TS) process to cover any defective areas with material and prepare the target surface for a continuous KS coating. Secondly, we propose to repair any existing surface defects with a TS process where the molten particles fill in the defective region(s) of the target surface making them amenable to a continuation of the KS coating thickening process.
>
> Elaborating upon the first proposal mentioned above. The

> TS process would be used to coat (prepare) either the entire target surface of selected regions of the target surface known to be defective (areas possessing steps, angles, voids, pits, cracks, or other features incompatible wit the formation of a continuous KS coating over such features). Once the defective regions were sprayed with sufficient TS material, the KS process would be initiated.
>
> Figure 4 is an example of such a repaired region on an existing KS coating. In this case, TS monel particles were applied to the left-hand side of the original sample...A majority of these conical defects were covered and healed as a result. The repaired regions of the target surface are now ready to receive additional KS copper material. The resulting KS copper coating would be continuous and free from defect in the healed areas....
>
> Continuation of the KS process may begin on the as sprayed TS coating...

This passage from Exhibit A demonstrates that Applicants conceived of the portions of the specification of the '468 patent from column 6, line 60 through column 7, line 5 and column 7, lines 25-65, which are relied upon by the Examiner to reject claims 1, 2, 4, 6, 7, 10, 11, 14, and 15 of the subject application under 35 U.S.C. §102(e), prior to September 23, 2002.

8. Referring to Exhibit B, the Record of Invention for Attorney Docket No. DP-306711, entitled, "System with a Combined Kinetic Spray Thermal Spray Ability," which is the basis for the '468 patent, identifies Brian K. Fuller and Thomas H. Van Steenkiste as the inventors. This Record of Invention also includes the following discussion on page 1 in the *background* section, which notes the Applicants' own work:

> However, the establishment of entirely non-defective coatings can be a problem with a purely KS process. Such problems are described in B.K. Fuller et al., Healing KS Coatings_ROI 9-18-01. Within this ROI a method is described to heal defective surfaces and established KS coatings using the TS process. Briefly, thin TS coatings

> can be applied to a target surface, or be used to fill and repair established KS coating conical defects. Conical defects result when certain geometrical imperfections are present in a target surface. In a purely KS process, once these defects form they are unrecoverable necessitating scrapping of the incomplete defective part and restarting the KS process with a new part.

This passage from Exhibit B demonstrates that the inventors of the '468 patent were aware of Applicants' own work and that the description of Applicants' own work in the specification of the '468 patent did not form any part of the invention of the '468 patent, since it was described above in the context of *background* information.

9. Randall Shoemaker, a patent attorney at Howard & Howard Attorneys P.C. at the time, drafted both the subject application and the specification of the '468 patent.

10. Referring to Exhibit C, a copy of the Record of Invention for Attorney Docket No. DP-306711, entitled, "System with a Combined Kinetic Spray Thermal Spray Ability," was forwarded to Howard & Howard Attorneys P.C. on March 20, 2002 and was used by Howard & Howard & Howard Attorneys P.C. as a basis for drafting the specification of the '468 patent. This demonstrates that Randall Shoemaker, who drafted the specification of the '468 patent, was aware of Applicants' own work since Applicants' own work was described in the background section of the Record of Invention for Attorney Docket No. DP-306711, entitled, "System with a Combined Kinetic Spray Thermal Spray Ability."

11. In view of the above considerations, as set forth in 1-11, the portions of the specification of the '468 patent relied upon by the Examiner to reject claims 1, 2, 4, 6, 7, 10, 11, 14, and 15 under 35 U.S.C. §102(e) arose from the work of Applicants of the subject application, and Applicants conceived these portions of the specification prior to

September 23, 2002, the effective filing date of the '468 patent for purposes of 35 U.S.C. §102(e).

12. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information are believed to be true; and further that these statements were made with the knowledge that willful and false statements and the like are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or patent issued thereon.

Respectfully submitted,

9/11/2006
Dated

Alaa A. Elmoursi

Exhibit A

DELPHI
Automotive Systems

File Number: DP-307055
Product Code: ____________
____
For I.P. Office Use Only

Record of Invention
and
Request for Intellectual Property Investigation

This Record of Invention provides written documentation of your invention and initiates a process that may result in the filing of a patent application.

Delphi Unit: Delphi Research Labs

Site/Location: Shelby Twp., MI 48315

Product group this invention applies to: Delphi S & P

Invention Title: Healing Kinetically Sprayed Defective Surfaces

---

To disclose and record your invention, provide the following information:

1. *To the best of your present knowledge, describe the background of your invention. Briefly describe the prior apparatus, material or process that is improved, replaced or most similar to your invention. What are the problems or shortcoming of the prior apparatus, material or process that are overcome by your invention?*

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

2. *Describe your invention. Provide enough detail of the specific new features, components or steps that form the invention to enable a technical understanding of its content and novelty. Include a drawing with reference numbers keyed to your text description. Explain how your invention differs from and improves or solves the problems of the prior apparatus, material or process described above.*

Our invention is a method to recover from these isolated or extended conical defects that can occur when fabricating KS coatings. Our proposal is two-fold. Firstly, to circumvent the initiation of conical defects, we propose that the target or substrate's surface be pre-sprayed using the thermal spray (TS) process to cover any defective areas with material and prepare the target surface for a continuous KS coating. Secondly, we propose to repair any existing surface defects with a TS process where the molten particles fill in the defective region(s) of the target surface making them amenable to a continuation of the KS coating thickening process.

Elaborating upon the first proposal mentioned above. The TS process would be used to coat (prepare) either the entire target surface or selected regions of the target surface known to be defective (areas possessing steps, angles, voids, pits, cracks, or other features incompatible with the formation of a continuous KS coating over such features). Once the defective regions were sprayed with sufficient TS material, the KS process would be initiated.

Figure 4 is an example of such a repaired region on an existing KS coating. In this case, TS monel particles were applied to the left-hand side of the original sample as pictured in figure 2 above. A majority of these conical defects were covered and healed as a result. The repaired regions of the target surface are now ready to receive additional KS copper material. The resulting KS copper coating would be continuous and free from defect in the healed areas.

The TS layer should be thick enough to heal the defective surface, but preferably not be so thick as to impart undesirable qualities into the coating. It is known that TS coatings possess significant thermal stress or distortions which are undesirable. Additionally TS metal tends to oxidize and these oxides are difficult to machine. A KS coating is preferred as oxidation is not an issue in this low temperature process.

Continuation of the KS process may begin on the as sprayed TS coating. Alternatively, the TS surface coating may be further prepared to result in a surface whose characteristics assure adequate adhesion to the KS overlayed coating. Such preparation may involve sand or grit blasting, chemical or electro-chemical etching, ultrasonic abrasion, or other surface preparation technique.

To help establish the date and status of your invention, provide the following information:

3. *Date this invention was first thought of:* [redacted]

4. *Attach a copy of the first written description and/or sketch of the invention. (preferably signed, dated & witnessed).*

5. *Date this invention was or is expected to be disclosed outside of Delphi:* ____
   If disclosed, to whom: (customer, supplier, public, etc.) ____

6. *Date this invention was used or is committed to be used in production:* ____

7. *Date this invention or a system including or using this invention was or will be offered for sale outside Delphi:* ____

[redacted]

If a patent application is to be filed on your invention, you may be contacted to provide (1) further information about your knowledge of prior art or events that might affect our ability to obtain a patent and (2) a more complete or updated description of what you consider to be the best mode of carrying out your invention.

Inventor #1 [redacted]

Name: Brian (First Name) K. (Middle Initial) Fuller (Last Name) Citizen of: U.S.A.

Social Security No. [redacted] Delphi Employee: [redacted]

☐ No → ☐ Contract ☐ Other

Home Address: [redacted] (Street / P.O. Box No.) (City and State) [redacted] (Zip Code) [redacted] (Area Code) + Number

Work Address: [redacted] [redacted] (Area Code) + Number [redacted] (Area Code) + Number

Department Name/Number: Delphi Research Mail Code: ____

Immediate Manager: [redacted] (Area Code) + Number

2nd Level Manager: [redacted] (Area Code) + Number

Contract Employer: ____ Telephone: ____ (Area Code) + Number
(if applicable)

Contract Employer Address: ____ (Street) ____ (City and State) ____ (Zip Code)

Inventor #2

Name: Alaa A. Elmoursi Citizen of: USA
First Name Middle Initial Last Name

[redacted]

Social Security No. [redacted]

☐ No → ☐ Contract ☐ Other

Home Address: [redacted] [redacted]
Street / P.O. Box No. City and State Zip Code (Area Code) + Number

Work Address: [redacted] [redacted] [redacted]
(Area Code) + Number (Area Code) + Number

Department Name/Number: [redacted] Mail Code:

Immediate Manager: [redacted]
(Area Code) + Number

2nd Level Manager: [redacted]
(Area Code) + Number

Contract Employer: Telephone:
(if applicable) (Area Code) + Number

Contract Employer Address:
Street City and State Zip Code

Inventor #3

Name: Ken M Rahmoeller Citizen of: USA
First Name Middle Initial Last Name

[redacted]

Social Security No. [redacted]

☐ No → ☐ Contract ☐ Other

Home Address: [redacted] Home Telephone: [redacted]
Street / P.O. Box No. City and State Zip Code (Area Code) + Number

Work Address: [redacted] [redacted] [redacted]
(Area Code) + Number (Area Code) + Number

Department Name/Number: [redacted] Mail Code:

Immediate Manager: [redacted]
(Area Code) + Number

2nd Level Manager: [redacted]
(Area Code) + Number

Contract Employer: Telephone:
(if applicable) (Area Code) + Number

Contract Employer Address:
Street City and State Zip Code

** If there are more than three (3) inventors, copy this page as needed. **

Authorization

I hereby assign this invention to Delphi Technologies, Inc. and authorize Delphi Technologies, Inc. to file a patent application on my behalf.

	BRIAN K. FULLER	9/25/01
INVENTOR – SIGNATURE	(ALSO, PRINT NAME)	DATE
Kenneth M. Rahmoeller	Kenneth M. Rahmoeller	9-25-01
INVENTOR – SIGNATURE	(ALSO, PRINT NAME)	DATE
	ALAA ELMOURSI	9-25-01
INVENTOR – SIGNATURE	(ALSO, PRINT NAME)	DATE

This invention was reviewed and understood by the witnesses below:

Dale L. Partin	DALE L. PARTIN	9/25/01
1st WITNESS – SIGNATURE	(ALSO, PRINT NAME)	DATE
Bruno Lequesne	BRUNO LEQUESNE	9/25/01
2nd WITNESS – SIGNATURE	(ALSO, PRINT NAME)	DATE

Guidelines for Description of Invention

Mechanical and Electrical Devices: Include a detailed description and drawings which illustrate all essential elements of the invention and the environment in which it is used. The description should describe the structure and its operation key-numbered to the drawing(s). To the extent known, alternate embodiments should be described. In the case of systems and circuits, use accepted symbols or labeled blocks for standard components. A computer program or controlling algorithm, if important to the invention, should be provided in flow chart or similarly accepted format, and input/output signals should be identified and related to appropriate sensors/actuators.

Chemical and Material Inventions: Identify all essential materials (in chemical terms, not trade names) used and alternatives therefor. All significant variables needed to define the invention must be identified, quantified and discussed. Depending on the nature of the invention, such variables might include treatment/reaction times, temperature, pressure, concentration, particle shape/size, viscosity, crystal structure, phases, porosity, pH, density, tensile strength, polymer chain length, etc. Each variable should be quantified in terms of an operative range and a preferred embodiment, e.g. "The heat treatment is carried out between 100°C and 200°C (preferably 165°C)". The function/purpose of each variable should be described, including a statement as to what happens if the variable falls outside the operative range, e.g. "Component A serves as a plasticizer for Component B. Below 100°C, Component A will not mix with Component B, and above 200°C it evaporates." Finally, a recipe for at least one detailed working example should be provided. Preferably, several such examples will be provided covering the full range of the significant variables used to define the invention.

Processes: Include a schematic of the components monitored, controlled and/or created by the process and a flow chart of the process illustrating the steps of the process at a level from which one skilled in the art can understand and implement the process. The description should set forth the operation of the process describing each step of the flow chart and its relationship or interaction with the components monitored, controlled and/or created by the process.

Protecting Your Invention

When a new idea comes to you, immediately make a drawing or sketch of it and write a brief description sufficient to make your invention clear to others working in the same field. Show the drawing and description to two of your associates who are not co-inventors and make sure they understand your invention. You and your co-inventors, and your associates as witnesses, should sign and date the drawing and description. The date used must be the date of the signature. The witnesses should state above their signatures that the drawing and description were reviewed and understood by them. Include the documents with your Record of Invention.

Be aware that patent rights may be lost irrevocably by action of law, in spite of timely documentation and submission of a Record of Invention, through actions taken by you or others prior to an actual patent application being filed in the appropriate government Patent Office. Such actions may include: (a) publishing the invention, (b) using the invention in public or commercially in our plants, (c) disclosing or offering to sell an item incorporating the invention outside Delphi or (d) obtaining a quote for such an item from a supplier. Please submit your Record of Invention without delay when you think of an invention and report any past or planned disclosure of the invention outside Delphi or commercial use of the invention so appropriate steps may be taken to avoid loss of patent rights.

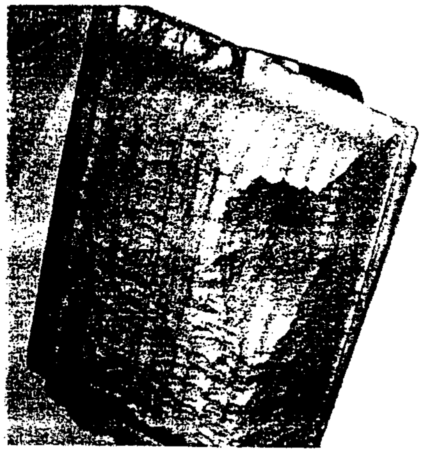

Figure 1, a large isolated conical defect.

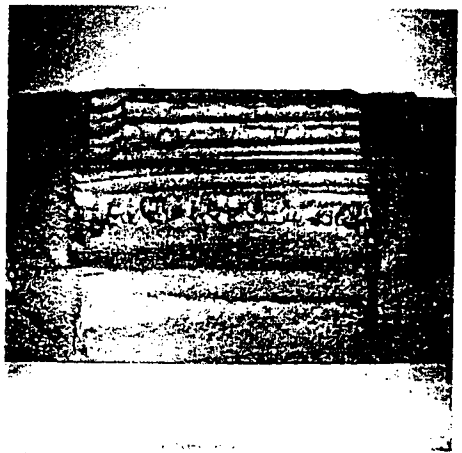

Figure 2, a string of conical defects.

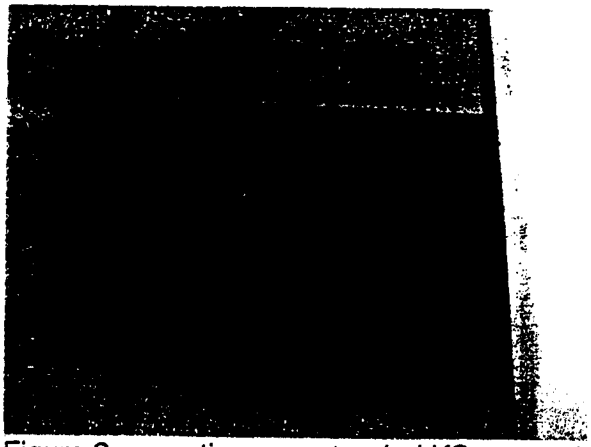

Figure 3, a continuous extended KS sprayed copper defect.

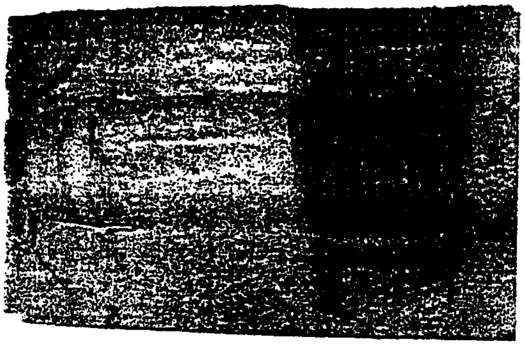

Figure 4, repair by monel thermal spray of a majority of the original string of conical defects in the KS copper coating.

Exhibit B

File Number: DP-306711
Product Code: ____________
____
For I.P. Office Use Only

Record of Invention
and
Request for Intellectual Property Investigation

This Record of Invention provides written documentation of your invention and initiates a process that may result in the filing of a patent application.

Delphi Unit: Delphi Research Labs

Site/Location: Shelby Twp., MI 48315

Product group this invention applies to: Delphi H, S & I, P, and E/C

Invention Title: System with a Combined Kinetic Spray Thermal Spray Ability

To disclose and record your invention, provide the following information:

1. *To the best of your present knowledge, describe the background of your invention. Briefly describe the prior apparatus, material or process that is improved, replaced or most similar to your invention. What are the problems or shortcoming of the prior apparatus, material or process that are overcome by your invention?*

[redacted]

[redacted]

However, the establishment of entirely non-defective coatings can be a problem with a purely KS process. Such problems are described in B.K. Fuller et al., Healing KS Coatings_ROI 9-18-01. Within this ROI a method is described to heal defective surfaces and established KS coatings using the TS process. Briefly, thin TS coatings can be applied to a target surface, or be used to fill and repair established KS coating conical defects. Conical defects result when certain geometrical imperfections are present in a target surface. In a purely KS process, once these defects form they are unrecoverable necessitating scrapping of the incomplete defective part and restarting the KS process with a new part.

[redacted]

2. *Describe your invention. Provide enough detail of the specific new features, components or steps that form the invention to enable a technical understanding of its content and novelty. Include a drawing with reference numbers keyed to your text description. Explain how your invention differs from and improves or solves the problems of the prior apparatus, material or process described above.*

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

To help establish the date and status of your invention, provide the following information:

3. [redacted]

4. *Attach a copy of the first written description and/or sketch of the invention. (preferably signed, dated & witnessed).*

5. *Date this invention was or is expected to be disclosed outside of Delphi:* __________
   If disclosed, to whom: (customer, supplier, public, etc.) __________

6. *Date this invention was used or is committed to be used in production:* __________

7. *Date this invention or a system including or using this invention was or will be offered for sale outside Delphi:* __________

8. [redacted]

If a patent application is to be filed on your invention, you may be contacted to provide (1) further information about your knowledge of prior art or events that might affect our ability to obtain a patent and (2) a more complete or updated description of what you consider to be the best mode of carrying out your invention.

Inventor #1

Name: Brian (First Name) K. (Middle Initial) Fuller (Last Name) Citizen of: U.S.A.

Social Security No. [redacted]

☐ No → ☐ Contract ☐ Other __________

Home Address: [redacted]
Street / P.O. Box No. City and State Zip Code (Area Code) + Number

Work Address: [redacted]
(Area Code) + Number (Area Code) + Number

Department Name/Number: Delphi Research [redacted]

Immediate Manager: [redacted]
(Area Code) + Number

2nd Level Manager: [redacted]

Contract Employer: __________ Telephone: __________
(If applicable) (Area Code) + Number

Contract Employer Address: __________
Street City and State Zip Code

Inventor #2

Name: Thomas H. Van Steenkiste Citizen of: USA
First Name Middle Initial Last Name

Social Security No. [redacted]

☐ No → ☐ Contract ☐ Other ____________

Home Address: [redacted]
Street / P.O. Box No. City and State Zip Code (Area Code) + Number

Work Address: [redacted]
(Area Code) + Number (Area Code) + Number

Department Name/Number: [redacted]

Immediate Manager: [redacted]
(Area Code) + Number

2nd Level Manager: [redacted]
(Area Code) + Number

Contract Employer: ____________ Telephone: ____________
(if applicable) (Area Code) + Number

Contract Employer Address: ____________
Street City and State Zip Code

Inventor #3

Name: ____________ ____________ ____________ Citizen of: ____________
First Name Middle Initial Last Name

Delphi Employee: ☐ Yes → ☐ Salary ☐ Hourly

Social Security No. ____________

☐ No → ☐ Contract ☐ Other ____________

Home Address: ____________ Home Telephone: ____________
Street / P.O. Box No. City and State Zip Code (Area Code) + Number

Work Address: ____________ Telephone: ____________ Fax Number: ____________
(Area Code) + Number (Area Code) + Number

Department Name/Number: ____________ Mail Code: ____________

Immediate Manager: ____________ Mail Code: ____________ Telephone: ____________
(Area Code) + Number

2nd Level Manager: ____________ Mail Code: ____________ Telephone: ____________
(Area Code) + Number

Contract Employer: ____________ Telephone: ____________
(if applicable) (Area Code) + Number

Contract Employer Address:
Street City and State Zip Code

** If there are more than three (3) inventors, copy this page as needed. **

Authorization

I hereby assign this invention to Delphi Technologies, Inc. and authorize Delphi Technologies, Inc. to file a patent application on my behalf.

	BRIAN FULLER	[redacted]
INVENTOR – SIGNATURE	**(ALSO, PRINT NAME)**	**DATE**
	Thomas Hubert Van Steenkiste	[redacted]
INVENTOR – SIGNATURE	**(ALSO, PRINT NAME)**	**DATE**
INVENTOR – SIGNATURE	**(ALSO, PRINT NAME)**	**DATE**

This invention was reviewed and understood by the witnesses below:

[redacted]

1st WITNESS – SIGNATURE	**(ALSO, PRINT NAME)**	**DATE**

[redacted]

2nd WITNESS – SIGNATURE	**(ALSO, PRINT NAME)**	**DATE**

Exhibit C

DELPHI

Scott A. McBain

March 20, 2002

Mr. William H. Honaker
Howard & Howard Attorneys, P.C.
The Pinehurst Office Center
Suite 101
39400 Woodward Avenue
Bloomfield Hills, MI 48034-5151

HOWARD & HOWARD
MAR 23 2002
RECEIVED

Re: New Patent Application

Dear Bill:

Enclosed is a copy of the following Record Of Invention:

ROI Number	**TITLE**
DP-306711	SYSTEM WITH A COMBINED KINETIC SPRAY THERMAL SPRAY ABILITY

Please prepare and file a United States Patent application for this Record of Invention.

[redacted]

Please prepare the text (and drawings if possible) in electronic form. [redacted]

Legal Staff - Intellectual Property
mail address: PO Box 5052 Troy Michigan 48007 USA
courier address: 1450 West Long Lake Road, 4th floor Troy, Michigan 48098 USA
direct phone: [1] 248.267.5514 fax: [1] 248.267.5559

[redacted]

[redacted]

Very truly yours,

Scott A McBain/sg

Scott A.McBain
Delphi Legal Staff

SAM/sg
Enclosures